

CLAIMS

What is claimed is:

1. A high speed communication transceiver for use as one of a plurality of high speed communication transceivers connected to a transmission line, the transmission line having a normal impedance, the high speed communication transceiver comprising:
 - a transmission line interface connected to the transmission line;
 - a receiver connected to the transmission line interface; and,
 - a transmitter selectively coupled to the transmission line interface, the transmitter having an impedance substantially equal to the normal line impedance, andwherein the high speed communication transceiver presents a high impedance to the transmission line with respect to the normal line impedance when the transmitter is not coupled to the transmission line interface, and the high speed communication transceiver presents an impedance to the transmission line that is substantially equal to the normal line impedance when the transmitter is coupled to the transmission line interface.
2. The high speed communication transceiver of claim 1 wherein the transmitter is selectively coupled to the transmission line by a switch.
3. The high speed communication transceiver of claim 2 wherein the switch is positioned within the transmitter.
4. The high speed communication transceiver of claim 2 wherein the switch includes mechanical contacts.
5. The high speed communication transceiver of claim 2 wherein the switch includes electro-mechanical relays.
6. The high speed communication transceiver of claim 2 wherein the switch is an electronic switch.
7. The high speed communication transceiver of claim 2 wherein the switch is a filter.
8. The high speed communication transceiver of claim 2 wherein the switch is manually controllable.
9. The high speed communication transceiver of claim 2 wherein the switch is automatically controllable by hardware.
10. The high speed communication transceiver of claim 2 wherein the switch is automatically controllable by software.

11. The high speed communication transceiver of claim 1 wherein the transmission line interface is a hybrid circuit.

12. The high speed communication transceiver of claim 1 wherein the transmission line includes bridge taps.

13. A high speed communication transceiver for use as one of a plurality of high speed communication transceivers connected to a transmission line, the transmission line having a normal impedance, the high speed communication transceiver comprising:

a transmission line interface selectively coupled to the transmission line;

a receiver selectively coupled to the transmission line interface; and,

a transmitter connected to the transmission line interface, the transmitter having an impedance substantially equal to the normal line impedance, and

wherein the high speed communication transceiver presents a high impedance to the transmission line with respect to the normal impedance and the receiver is not coupled to the transmission line interface when the transmission line interface is not coupled to the transmission line, and wherein the high speed communication transceiver presents an impedance to the transmission line substantially equal to the normal impedance of the transmission line and the receiver being coupled to the transmission line interface when the transmission line interface is coupled to the transmission line.

14. The high speed communication transceiver of claim 13 wherein the transmission line interface is selectively coupled to the transmission line by a first switch and the receiver is selectively coupled to the transmission line interface by a second switch.

15. The high speed communication transceiver of claim 14 wherein the receiver is coupled to the transmission line by the second switch, a protection circuit and the first switch when the transmission line interface is not coupled to the transmission line, and the receiver is coupled to the transmission line interface by the second switch when the transmission line interface is coupled to the transmission line.

16. The high speed communication transceiver of claim 14 wherein at least one of the first and second switches include mechanical contacts.

17. The high speed communication transceiver of claim 14 wherein at least one of the first and second switches include electro-mechanical relays.

18. The high speed communication transceiver of claim 14 wherein at least one of the first and second switches is an electronic switch.

19. The high speed communication transceiver of claim 14 wherein at least one of the first and second switches is a filter.

20. The high speed communication transceiver of claim 14 wherein at least one of the first and second switches is manually controllable.

21. The high speed communication transceiver of claim 14 wherein at least one of the first and second switches is automatically controllable by hardware.

22. The high speed communication transceiver of claim 14 wherein at least one of the first and second switches is automatically controllable by software.

23. The high speed communication transceiver of claim 14 wherein the transmission line interface is a hybrid circuit.

24. The high speed communication transceiver of claim 14 wherein the transmission line includes bridge taps.

25. A high speed communication transceiver for use as one of a plurality of high speed communication transceivers connected to a transmission line, the transmission line having a normal impedance, the high speed communication transceiver comprising:

- a transmission line interface selectively coupled to the transmission line;
- a first receiver connected to the transmission line interface;
- a second receiver selectively coupled to the transmission line; and,
- a transmitter connected to the transmission line interface, the transmitter having an impedance substantially equal to the normal line impedance, and

wherein the high speed communication transceiver presents a high impedance to the transmission line with respect to the normal impedance of the transmission line and the second receiver is coupled to the transmission line when the transmission line interface is not coupled to the transmission line, wherein the high speed communication transceiver presents an impedance to the transmission line substantially equal to the normal impedance of the transmission line and the second receiver is not connected to the transmission line when the transmission line interface is coupled to the transmission line.

26. The high speed communication transceiver of claim 25 wherein the second receiver is coupled to the transmission line by a protection circuit and a first switch when the second receiver is coupled to the transmission line.

27. The high speed communication transceiver of claim 26 wherein the first switch includes mechanical contacts.

28. The high speed communication transceiver of claim 26 wherein the first switch includes electro-mechanical relays.

29. The high speed communication transceiver of claim 26 wherein the first switch is an electronic switch.

30. The high speed communication transceiver of claim 26 wherein the first switch is a filter.

31. The high speed communication transceiver of claim 26 wherein the first switch is manually controllable.

32. The high speed communication transceiver of claim 26 wherein the first switch is automatically controllable by hardware.

33. The high speed communication transceiver of claim 26 wherein the first switch is automatically controllable by software.

34. The high speed communication transceiver of claim 26 wherein the transmission line interface is a hybrid circuit.

35. The high speed communication transceiver of claim 26 wherein the transmission line includes bridge taps.

36. A high speed communication system comprising:
at least one central office high speed communication transceiver;
a transmission line having a normal impedance, wherein the at least one central office high speed communication transceiver is connected to a first end of the transmission line;

a plurality of remote high speed communication transceivers connected to a second end of the transmission line, each remote high speed communication transceiver including a first receiver, a transmission line interface, and a transmitter selectively coupled to the transmission line,

wherein each remote high speed communication transceiver presents a high impedance to the transmission line with respect to the normal line impedance when the transmitter is not coupled to the transmission line and each remote high speed communication transceiver presents an impedance substantially equal to the normal line impedance to the transmission line when the transmitter is coupled to the transmission line.

37. The high speed communication system of claim 36 wherein the transmitter is selectively coupled to the transmission line by a first switch and the transmission line interface.

38. The high speed communication system of claim 37 wherein the transmitter is coupled to the transmission line interface by the first switch and the transmission line interface is connected to the transmission line.

39. The high speed communication system of claim 38 wherein the first switch is positioned within the transmitter.

40. The high speed communication system of claim 37 wherein the first receiver is selectively coupled to the transmission line interface by a second switch and the transmission line interface is selectively coupled to the transmission line by the first switch, each remote high speed communication transceiver presenting a high impedance to the transmission line with respect to the normal line impedance and the first receiver being coupled to the transmission line by the second switch and the first switch when the transmitter is not coupled to the transmission line, and each remote high speed communication transceiver presenting an impedance to the transmission line substantially equal to the normal line impedance and the first receiver being coupled to the transmission line interface by the second switch when the transmitter is coupled to the transmission line.

41. The high speed communication system of claim 40 further including a protection circuit, wherein the first receiver is coupled to the transmission line by the second switch, the protection circuit, and the first switch when the transmitter is not coupled to the transmission line.

42. The high speed communication system of 37 wherein each remote high speed communication transceiver further includes a second receiver selectively coupled to the transmission line by the first switch, each remote high speed communication transceiver presenting a high impedance to the transmission line with respect to the normal line impedance and the second receiver being coupled to the transmission line by the first switch when the transmitter is not coupled to the transmission line, and each remote high speed communication transceiver presenting an impedance to the transmission line substantially equal to the normal line impedance and the first receiver being coupled to the transmission line by the transmission line interface and the first switch when the transmitter is coupled to the transmission line.

43. The high speed communication system of claim 42 wherein each remote high speed communication transceiver further includes a protection circuit, the second receiver

being coupled to the transmission line by the protection circuit and the first switch when the transmitter is not coupled to the transmission line.

44. A method for allowing a plurality of high speed communication transceivers connected to a transmission line to effectively receive data from the transmission line, wherein each communication transceiver is capable of receiving and transmitting data in an active state, and capable of sensing and receiving data in a high impedance state, the method comprising the steps of:

setting a first high speed communication transceiver to the active state;

setting a second high speed communication transceiver to the high impedance state;
and,

setting a third high speed communication transceiver to the high impedance state.

45. The method of claim 44 wherein the step of setting the third high speed communication transceiver to the high impedance state further comprises the step of setting all of the plurality of high speed communication transceivers other than the first high speed communication transceiver to the high impedance state.

46. The method of claim 44 further including the steps of receiving data indicating an intended transceiver with the second and third transceivers, and temporarily setting the intended transceiver to the active state.

47. The method of claim 44 wherein the first transceiver is a central office transceiver connected to the transmission line at a first end, and the second and third high speed communication transceivers are remote transceivers connected to a transmission line at a second end.

48. A method for allowing a plurality of high speed communication transceivers connected to a transmission line to effectively receive data from the transmission line, wherein each communication transceiver is capable of receiving and transmitting data in an active state, and capable of sensing and receiving data in a high impedance state, the method comprising the steps of:

setting a first high speed communication transceiver to the active state;

setting a second high speed communication transceiver to the active state; and,
setting a third high speed communication transceiver to the high impedance state.

49. The method of claim 48 further including the step of receiving data indicating an intended transceiver with the second and third transceivers, and resetting the intended

transceiver to the active state and resetting the other transceiver to the high impedance state if the intended transceiver initially was set to the high impedance state.

50. The method of claim 48 further including the step of resetting one of the first and second transceivers to the active state based on a protocol, and transmitting data with the reset transceiver.

51. The method of claim 50 wherein the protocol is a time slot based protocol.

52. The method of claim 50 wherein the protocol is a line sensing based protocol.

53. A communication system that allows a plurality of high speed communication transceivers connected to a transmission line to effectively receive data from the transmission line, wherein each communication transceiver is capable of receiving and transmitting data in an active state, and capable of sensing and receiving data in a high impedance state, the communication system comprising:

a first means for receiving and transmitting data comprising a first setting means for setting the first means to the active state and the high impedance state;

a second means for receiving and transmitting data comprising a second setting means for setting the second means to the active state and the high impedance state;

a third means for receiving and transmitting data comprising a third setting means for setting the third means to the active state and the high impedance state; and,

a fourth means for carrying data, the first, second and third means being connected to the fourth means.

54. A high speed communication transmitter for use as one of a plurality of high speed communication devices connected to a transmission line, the transmission line having a normal impedance, the high speed communication transmitter comprising:

a line driver selectively coupled to the transmission line, the line driver having an impedance substantially equal to the normal impedance of the transmission line; and a

a resistor coupled to the transmission line, the resistor having a high impedance with respect to the normal impedance of the transmission line,

wherein the transmitter presents a high impedance to the transmission line and is in a high impedance state when the line driver is not coupled to the transmission line, and the transmitter presents a normal impedance to the transmission line and is in a normal impedance state when the line driver is coupled to the transmission line.

55. The high speed communication transmitter of claim 54 wherein the line driver is selectively coupled to the transmission line by a first switch.

56. The high speed communication transmitter of claim 55 wherein the switch includes mechanical contacts.

57. The high speed communication transmitter of claim 55 wherein the switch includes electro-mechanical relays.

58. The high speed communication transmitter of claim 55 wherein the switch is an electronic switch.

59. The high speed communication transmitter of claim 55 wherein the switch is a filter.

60. The high speed communication transmitter of claim 55 wherein the switch is manually controllable.

61. The high speed communication transmitter of claim 55 wherein the switch is automatically controllable by hardware.

62. The high speed communication transmitter of claim 55 wherein the switch is automatically controllable by software.